

AMENDMENTS TO THE CLAIMS

Amend the claimed as follows:

Claims 1-89. (Canceled)

90. (new) A compound having the following formula:



wherein:

Ar is a 1-(sulfonyl)-1H-indol-2-yl group;

the group -OR^O is independently:

- (a) -OH;
- (b) an ether group; or
- (c) an acyloxy group;

the bond marked α is independently:

- (a) a single bond; or
- (b) a double bond;

the bond marked β is independently:

- (a) a single bond; or
- (b) a double bond;

each of R², R³, R⁵, and R⁶, is independently a ring substituent and is:

- (a) H;
- (b) a monovalent monodentate substituent; or

(c) a ring substituent which, together with an adjacent ring substituent, and together with the ring atoms to which these ring substituents are attached, form a fused ring;

and pharmaceutically acceptable salts, esters, amides, solvates, hydrates, and protected forms thereof.

91. (new) A compound according to claim 90, wherein α is independently a double bond and β is independently a double bond, and the compound has the following formula:



92. (new) A compound according to claim 90, wherein α is independently a single bond and β is independently a single bond and the compound has the following formula:



93. (new) A compound according to claim 90, wherein α is independently a single bond and β is independently a double bond, and the compound has the following formula:



94. (new) A compound according to claim 90, wherein said monovalent monodentate substituent is selected from:

hydroxy (-OH);

halo;

cyano (-CN);

carboxy (-COOH);

azido;

ester;

amino, including:

C₁₋₇alkyl-amino;

amino-C₁₋₇alkyl-amino;

C₁₋₇alkyl, including:

halo-C₁₋₇alkyl;

amino-C₁₋₇alkyl;

carboxy-C₁₋₇alkyl;

hydroxy-C₁₋₇alkyl;

C₅₋₂₀aryl-C₁₋₇alkyl;

ether, including:

C₁₋₇alkoxy;

halo-C₁₋₇alkoxy;

amino-C₁₋₇alkoxy;

carboxy-C₁₋₇alkoxy;

hydroxy-C₁₋₇alkoxy;

C₅₋₂₀aryl-C₁₋₇alkoxy;

acyl, including:

C₁₋₇alkyl-acyl;

halo-C₁₋₇alkyl-acyl;

amino-C₁₋₇alkyl-acyl;

carboxy-C₁₋₇alkyl-acyl;

hydroxy-C₁₋₇alkyl-acyl;

C₅₋₂₀aryl-C₁₋₇alkyl-acyl;

C₅₋₂₀aryl-acyl;

C₅₋₂₀aryl;

thiol (-SH); and,

thioether.

95. (new) A compound according to claim 90, wherein said monovalent monodentate substituent is selected from:

-OH;

-F, -Cl, -Br, -I;

-CN;

-COOH;

-N₃;

-COOMe, -COOEt, -COOtBu, -COOPh, -COOCH₂Ph;

-NH₂, -NHMe, -NH₂Et, -NMe₂, -NEt₂;

piperidino, morpholino, piperazino, N-methyl-piperazino;

-NH(CH₂)_w-NH₂, -NH(CH₂)_w-NHMe, -NH(CH₂)_w-NMe₂, -NH(CH₂)_w-NEt₂;

-Me, -Et, -nPr, -iPr, -nBu, -iBu, -sBu, -tBu;

-CH₂F, -CH₂Cl, -CF₃, -CCl₃, -CF₂CF₃, -CH₂CF₃, -C(CF₃)₃;

-(CH₂)_w-NH₂, -(CH₂)_w-NHMe, -(CH₂)_w-NMe₂, -(CH₂)_w-NEt₂;

-(CH₂)_w-COOH;

-(CH₂)_w-OH;

-CH₂Ph;

-OMe, -OEt, -OnPr, -OiPr, -OnBu, -OiBu, -OsBu, -OtBu;

-OCH₂F, -OCH₂Cl, -OCF₃, -OCCl₃, -OCF₂CF₃, -OCH₂CF₃, -OC(CF₃)₃;

-O(CH₂)_w-NH₂, -O(CH₂)_w-NHMe, -O(CH₂)_w-NMe₂, -O(CH₂)_w-NEt₂;

-O(CH₂)_w-COOH;

-O(CH₂)_w-OH;

-OCH₂Ph;

-C(=O)Me, -C(=O)Et, -C(=O)-nPr, -C(=O)-iPr, -C(=O)-nBu, -C(=O)-iBu,

-C(=O)-sBu, -C(=O)-tBu;

-C(=O)CH₂F, -C(=O)CH₂Cl, -C(=O)CF₃, -C(=O)CCl₃, -C(=O)CF₂CF₃,

-C(=O)CH₂CF₃, -C(=O)C(CF₃)₃;

-C(=O) (CH₂)_w-NH₂, -C(=O) (CH₂)_w-NHMe, -C(=O) (CH₂)_w-NMe₂,

-C(=O)(CH₂)_w-NEt₂;

-C(=O) (CH₂)_w-COOH;

-C(=O) (CH₂)_w-OH;

-C(=O)CH₂Ph;

-Ph;

-SH;

-SMe, -SEt, -SnPr, -S-iPr, -S-nBu, -S-iBu, -S-sBu, -S-tBu,

-S-CH₂-Ph, -S-Ph;

a thioether group derived from cysteine, homocysteine, glutathione, or a peptide comprising the sequence -Cys-(X)_y-Cys-, where X is an amino acid, and y is an integer from 1 to 6;

wherein w is an integer from 1 to 7.

96. (new) A compound according to claim 90, wherein each of R², R³, R⁵, and R⁶, is independently a ring substituent and is:

(a) H; or:

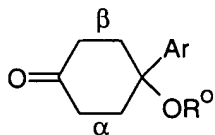
(b) a monovalent monodentate substituent.

97. (new) A compound according to claim 91, wherein each of R², R³, R⁵, and R⁶, is independently a ring substituent and is:

(a) H; or:

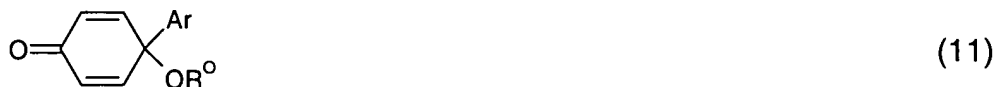
(b) a monovalent monodentate substituent.

98. (new) A compound according to claim 90, wherein R², R³, R⁵ and R⁶ are -H:



(9)

99. (new) A compound according to claim 90, wherein R^2 , R^3 , R^5 and R^6 are -H; α is a double bond; and β is a double bond:



100. (new) A compound according to claim 90, wherein

(a) R^2 and R^3 , together with the ring atoms to which they are attached, form a fused ring; or

(b) R^5 and R^6 , together with the ring atoms to which they are attached, form a fused ring; or

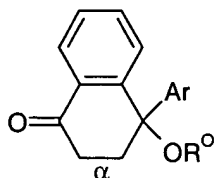
(c) or both (a) and (b).

101. (new) A compound according to claim 99, wherein R^2 and R^3 form a fused benzene ring; and β is a double bond:



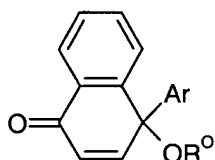
102. (new) A compound according to claim 101, wherein R^5 and R^6 do not also form a fused ring.

103. (new) A compound according to claim 99, wherein R^2 and R^3 form a fused benzene ring; β is a double bond; and R^5 and R^6 are -H:



(17)

104. (new) A compound according to claim 99, wherein R^2 and R^3 form a fused benzene ring; β is a double bond; R^5 and R^6 are -H; and α is a double bond:



(18)

105. (new) A compound according to claim 90, wherein R^O is independently:

(a) -H;

(b) C_{1-7} alkyl, C_{3-20} heterocyclyl, or C_{5-20} aryl; and is optionally substituted;

or:

(c) C_{1-7} alkyl-acyl, C_{3-20} heterocyclyl-acyl, or C_{5-20} aryl-acyl; and is optionally substituted.

106. (new) A compound according to claim 104, wherein R^O is optionally substituted with one more of the following groups:

hydroxy (-OH);

halo;

carboxy (-COOH);

amino; and,

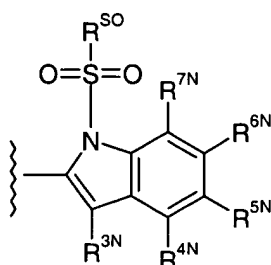
C_{5-20} aryl.

107. (new) A compound according to claim 90, wherein R^O is -H.

108. (new) A compound according to claim 91, wherein R^O is -H.

109. (new) A compound according to claim 99, wherein R^O is -H.

110. (new) A compound according to claim 90, wherein Ar is a group of the following formula:



wherein:

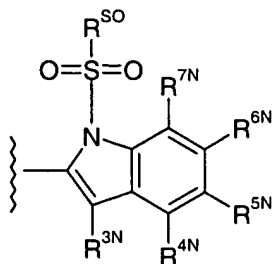
R^{SO} is independently a sulfonyl substituent; and

each of R^{3N} , R^{4N} , R^{5N} , R^{6N} , and R^{7N} is independently an indolyl substituent.

111. (new) A compound according to claim 110, wherein R^{SO} is C_{1-7} alkyl, C_{3-20} heterocyclyl, or C_{5-20} aryl; and is optionally substituted.

112. (new) A compound according to claim 110, wherein R^{SO} is C_{5-20} aryl; and is optionally substituted.

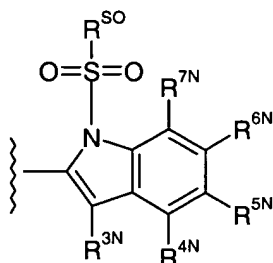
113. (new) A compound according to claim 99, wherein Ar is a group of the following formula:



wherein:

R^{SO} is independently C_{5-20} aryl; and is optionally substituted; and
each of R^{3N} , R^{4N} , R^{5N} , R^{6N} , and R^{7N} is independently an indolyl substituent.

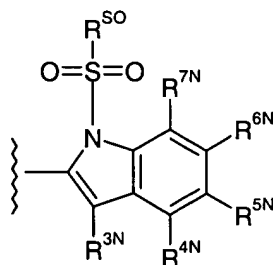
114. (new) A compound according to claim 104, wherein Ar is a group of the following formula:



wherein:

R^{SO} is independently C_{5-20} aryl; and is optionally substituted; and
each of R^{3N} , R^{4N} , R^{5N} , R^{6N} , and R^{7N} is independently an indolyl
substituent.

115. (new) A compound according to claim 109, wherein Ar is a group of the following formula:



wherein:

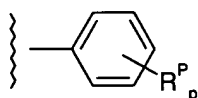
R^{SO} is independently C_{5-20} aryl; and is optionally substituted; and
each of R^{3N} , R^{4N} , R^{5N} , R^{6N} , and R^{7N} is independently an indolyl
substituent.

116. (new) A compound according to claim 110, wherein R^{SO} is phenyl or naphthyl; and is optionally substituted.

117. (new) A compound according to claim 110, wherein R^{SO} is naphthyl; and is optionally substituted.

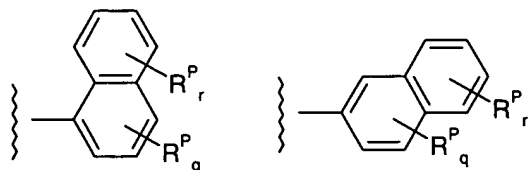
118. (new) A compound according to claim 110, wherein R^{SO} is phenyl; and is optionally substituted.

119. (new) A compound according to claim 110, wherein R^{SO} is selected from:



wherein p is an integer from 0 to 5, and each R^p is a phenyl substituent;

and



wherein q is an integer from 0 to 3; r is an integer from 0 to 4; and each R^p is a naphthyl substituent.

120. (new) A compound according to claim 119, wherein each R^P is independently selected from:

hydroxy (-OH);

halo;

cyano (-CN);

carboxy (-COOH);

azido;

ester;

amino, including:

amino-C₁₋₇alkyl-amino;

C₁₋₇alkyl, including:

halo-C₁₋₇alkyl;

amino-C₁₋₇alkyl;

carboxy-C₁₋₇alkyl;

hydroxy-C₁₋₇alkyl;

C₅₋₂₀aryl-C₁₋₇alkyl;

ether, including:

C₁₋₇alkoxy;

halo-C₁₋₇alkoxy;

amino-C₁₋₇alkoxy;

carboxy-C₁₋₇alkoxy;

hydroxy-C₁₋₇alkoxy;

C₅₋₂₀aryl-C₁₋₇alkoxy;

acyl, including:

C₁₋₇alkyl-acyl;

halo-C₁₋₇alkyl-acyl;

amino-C₁₋₇alkyl-acyl;

carboxy-C₁₋₇alkyl-acyl;

hydroxy-C₁₋₇alkyl-acyl;

C₅₋₂₀aryl-C₁₋₇alkyl-acyl;

C₅₋₂₀aryl-acyl;

C₅₋₂₀aryl.

121. (new) A compound according to claim 119, wherein each R^P is independently selected from:

-OH;

-F, -Cl, -Br, -I;

-CN;

-COOH;

-N₃;

-COOMe, -COOEt, -COOtBu, -COOPh, -COOCH₂Ph;

-NH₂, -NHMe, -NH₂Et, -NMe₂, -NEt₂;

piperidino, morpholino, piperazino, N-methyl-piperazino;

$-\text{NH}(\text{CH}_2)_w\text{NH}_2$, $-\text{NH}(\text{CH}_2)_w\text{NHMe}$, $-\text{NH}(\text{CH}_2)_w\text{NMe}_2$, $-\text{NH}(\text{CH}_2)_w\text{NEt}_2$;

$-\text{Me}$, $-\text{Et}$, $-\text{nPr}$, $-\text{iPr}$, $-\text{nBu}$, $-\text{iBu}$, $-\text{sBu}$, $-\text{tBu}$;

$-\text{CH}_2\text{F}$, $-\text{CH}_2\text{Cl}$, $-\text{CF}_3$, $-\text{CCl}_3$, $-\text{CF}_2\text{CF}_3$, $-\text{CH}_2\text{CF}_3$, $-\text{C}(\text{CF}_3)_3$;

$-(\text{CH}_2)_w\text{NH}_2$, $-(\text{CH}_2)_w\text{NHMe}$, $-(\text{CH}_2)_w\text{NMe}_2$, $-(\text{CH}_2)_w\text{NEt}_2$;

$-(\text{CH}_2)_w\text{COOH}$;

$-(\text{CH}_2)_w\text{OH}$;

$-\text{CH}_2\text{Ph}$;

$-\text{OMe}$, $-\text{OEt}$, $-\text{OnPr}$, $-\text{OiPr}$, $-\text{OnBu}$, $-\text{OiBu}$, $-\text{OsBu}$, $-\text{OtBu}$;

$-\text{OCH}_2\text{F}$, $-\text{OCH}_2\text{Cl}$, $-\text{OCF}_3$, $-\text{OCCl}_3$, $-\text{OCF}_2\text{CF}_3$, $-\text{OCH}_2\text{CF}_3$, $-\text{OC}(\text{CF}_3)_3$;

$-\text{O}(\text{CH}_2)_w\text{NH}_2$, $-\text{O}(\text{CH}_2)_w\text{NHMe}$, $-\text{O}(\text{CH}_2)_w\text{NMe}_2$, $-\text{O}(\text{CH}_2)_w\text{NEt}_2$;

$-\text{O}(\text{CH}_2)_w\text{COOH}$;

$-\text{O}(\text{CH}_2)_w\text{OH}$;

$-\text{OCH}_2\text{Ph}$;

$-\text{C}(=\text{O})\text{Me}$, $-\text{C}(=\text{O})\text{Et}$, $-\text{C}(=\text{O})\text{nPr}$, $-\text{C}(=\text{O})\text{iPr}$, $-\text{C}(=\text{O})\text{nBu}$, $-\text{C}(=\text{O})\text{iBu}$,

$-\text{C}(=\text{O})\text{sBu}$, $-\text{C}(=\text{O})\text{tBu}$;

$-\text{C}(=\text{O})\text{CH}_2\text{F}$, $-\text{C}(=\text{O})\text{CH}_2\text{Cl}$, $-\text{C}(=\text{O})\text{CF}_3$, $-\text{C}(=\text{O})\text{CCl}_3$, $-\text{C}(=\text{O})\text{CF}_2\text{CF}_3$,

$-\text{C}(=\text{O})\text{CH}_2\text{CF}_3$, $-\text{C}(=\text{O})\text{C}(\text{CF}_3)_3$;

$-\text{C}(=\text{O}) (\text{CH}_2)_w\text{-NH}_2$, $-\text{C}(=\text{O}) (\text{CH}_2)_w\text{-NHMe}$, $-\text{C}(=\text{O}) (\text{CH}_2)_w\text{-NMe}_2$,

$-\text{C}(=\text{O})(\text{CH}_2)_w\text{-NEt}_2$;

$-\text{C}(=\text{O}) (\text{CH}_2)_w\text{-COOH}$;

$-\text{C}(=\text{O}) (\text{CH}_2)_w\text{-OH}$;

$-\text{C}(=\text{O})\text{CH}_2\text{Ph}$;

$-\text{Ph}$;

wherein w is an integer from 1 to 7.

122. (new) A compound according to claim 119, wherein each R^{P} is independently selected from: $-\text{F}$, $-\text{Cl}$, $-\text{Br}$, $-\text{I}$, $-\text{Me}$, $-\text{Et}$, $-\text{OMe}$, $-\text{OEt}$.

123. (new) A compound according to claim 119, wherein each R^{P} is independently selected from: $-\text{F}$, $-\text{Me}$, $-\text{OMe}$.

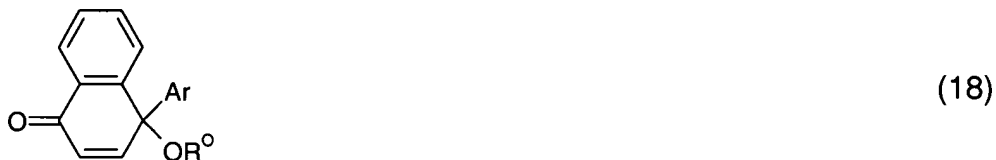
124. (new) A compound according to claim 120, wherein each of $\text{R}^{3\text{N}}$, $\text{R}^{4\text{N}}$, $\text{R}^{5\text{N}}$, $\text{R}^{6\text{N}}$, and $\text{R}^{7\text{N}}$ is independently $-\text{H}$, or as defined for R^{P} .

125. (new) A compound according to claim 120, wherein each of $\text{R}^{3\text{N}}$, $\text{R}^{4\text{N}}$, $\text{R}^{5\text{N}}$, $\text{R}^{6\text{N}}$, and $\text{R}^{7\text{N}}$ is independently selected from:

$-\text{H}$, $-\text{F}$, $-\text{Cl}$, $-\text{Br}$, $-\text{I}$, $-\text{Me}$, $-\text{Et}$, $-\text{OMe}$, $-\text{OEt}$.

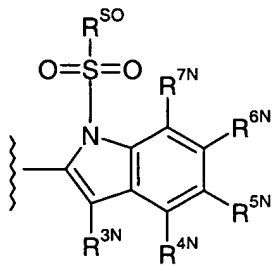
126. (new) A compound according to claim 120, wherein each of R^{3N} , R^{4N} , R^{6N} , and R^{7N} is -H.

127. (new) A compound selected from compounds having the following formulae and pharmaceutically acceptable salts, esters, amides, solvates, hydrates, and protected forms thereof:



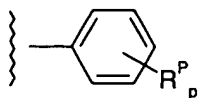
wherein R^O is -H;

wherein Ar is a group of the following formula:

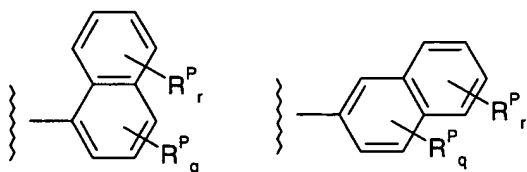


wherein:

R^{SO} is selected from:



wherein p is an integer from 0 to 5, and each R^p is a phenyl substituent; and



wherein q is an integer from 0 to 3; r is an integer from 0 to 4; and each R^p is a naphthyl substituent;

and wherein:

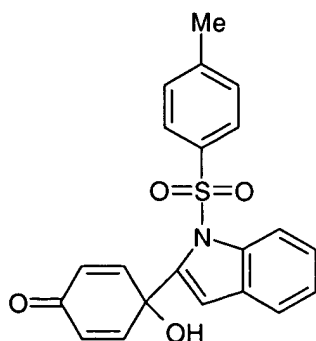
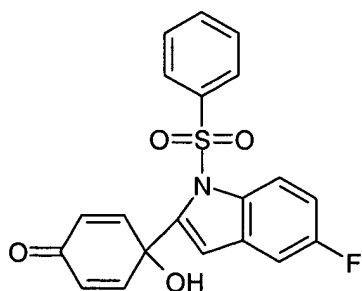
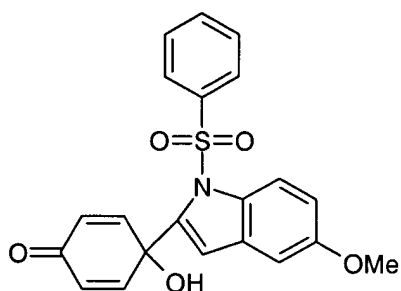
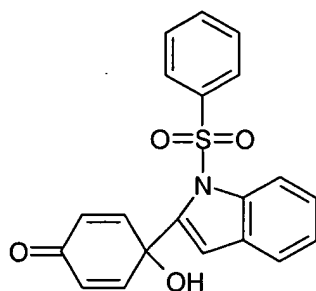
each of R^{3N} , R^{4N} , R^{5N} , R^{6N} , and R^{7N} is independently an indolyl substituent.

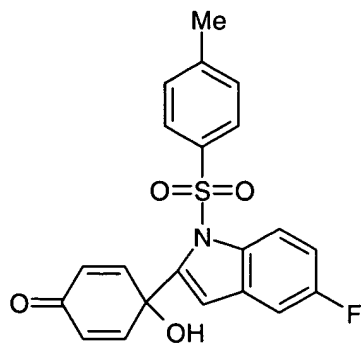
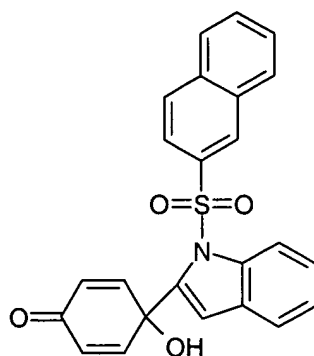
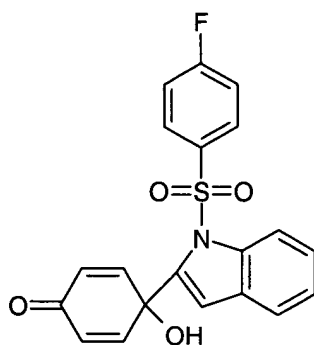
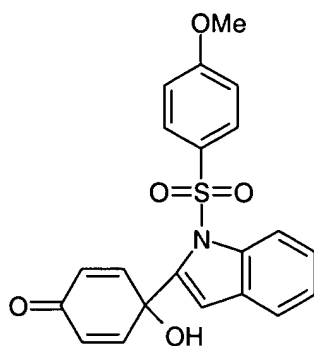
128. (new) A compound according to claim 127, wherein:

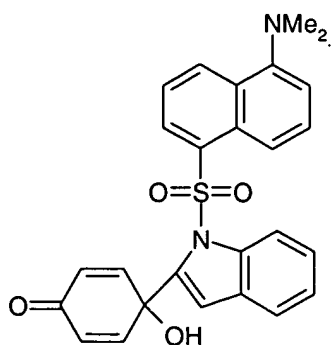
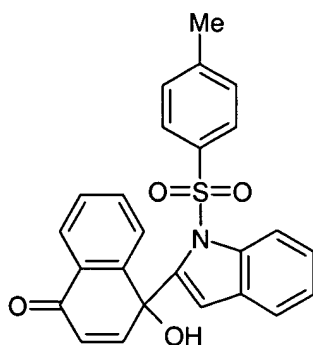
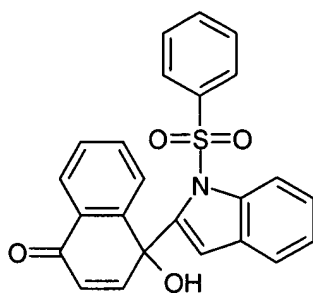
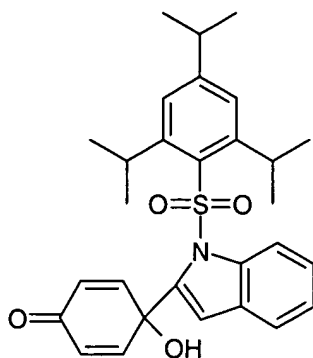
each R^p is independently selected from: -F, -Cl, -Br, -I, -Me, -Et, -OMe, -OEt; and

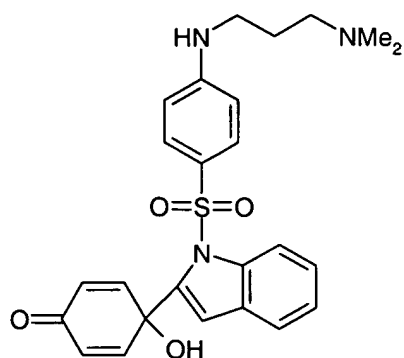
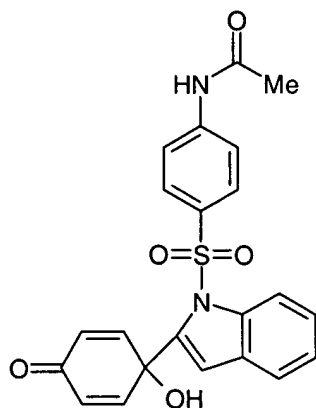
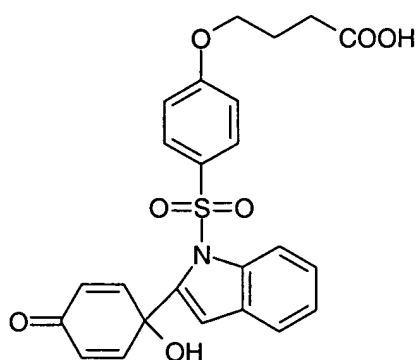
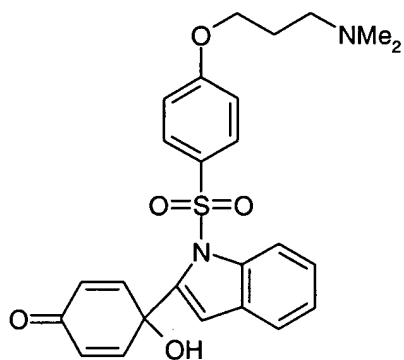
each of R^{3N} , R^{4N} , R^{5N} , R^{6N} , and R^{7N} is independently selected from: -H, -F, -Cl, -Br, -I, -Me, -Et, -OMe, -OEt.

129. (new) A compound selected from the following compounds and pharmaceutically acceptable salts, esters, amides, solvates, hydrates, and protected forms thereof:









130. (new) A composition comprising a compound according to claim 90 and a pharmaceutically acceptable carrier or diluent.

131. (new) A method for the treatment of a proliferative condition comprising administering to a subject suffering from said condition a therapeutically-effective amount of a compound according to claim 90.

132. (new) A method for the treatment of cancer comprising administering to a subject suffering from said cancer a therapeutically-effective amount of a compound according to claim 90.

133. (new) A method for the treatment of colon cancer or renal cancer comprising administering to a subject suffering from said cancer a therapeutically-effective amount of a compound according to claim 90.

134. (new) A method for the treatment of a condition mediated by thioredoxin/thioredoxin reductase comprising administering to a subject suffering from said condition a therapeutically-effective amount of a compound according to claim 90.

135. (new) A method of inhibiting thioredoxin/thioredoxin reductase in a cell, *in vitro* or *in vivo*, comprising contacting said cell with an effective amount of according to claim 90.

136. (new) A method of regulating cell proliferation, *in vitro* or *in vivo*, comprising contacting a cell with an effective amount of a compound according to claim 90.

137. (new) A method of (a) inhibiting cell proliferation; (b) inhibiting cell cycle progression; (c) promoting apoptosis; or (d) a combination of one or more of these, *in vitro* or *in vivo*, comprising contacting a cell with an effective amount of a compound according to claim 90.